

WHAT IS CLAIMED:

1. A pressure measuring device comprising:
an elongated tube comprising an opening,
the elongated tube being slidably received in a tubular sheath, the tubular
5 sheath comprising at least two spaced apart openings,
the elongated tube being slidable within the tubular sheath thereby allowing
the opening of the elongated tube to be selectively aligned with both openings of the
tubular sheath.

10 2. The pressure measuring device of claim 1 wherein the elongated tube
further comprises a closed distal end.

15 3. The pressure measuring device of claim 1 wherein the tubular sheath
further comprises a closed distal end.

4. The pressure measuring device of claim 1 wherein the tubular sheath
further comprises a proximal end and a distal end which define a first length,
the elongated tube further comprises a proximal end and a distal end which
define a second length,

20 the second length being greater than the first length so that the proximal end
of the elongated tube is disposed outside of the proximal end of the tubular sheath,

the elongated tube further comprising two markings, one of the markings of
the elongated tube being aligned with the proximal end of the tubular sheath when
the opening of the elongated tube is aligned with one of the openings of the tubular
25 sheath, the other of the markings of the elongated tube being aligned with the
proximal end of the tubular sheath when the opening of the elongated tube is aligned
with the other of the openings of the tubular sheath.

30 5. The pressure measuring device of claim 4 wherein the proximal end
of the elongated tube is connected to a pressure transducer.

6. The pressure measuring device of claim 1 wherein the tubular sheath has an inside surface and the elongated tube has an outside surface, the elongated tube being frictionally received in the tubular sheath so that engagement between the inside surface of the tubular sheath and the outside surface of the elongated tube substantially prevents fluid communication through the tubular sheath and between the inside surface of the tubular sheath and the outside surface of the elongated tube.

7. The pressure measuring device of claim 1 wherein at least one of the elongated tube or tubular sheath comprises a radiopaque marker at a distal end thereof.

8. A pressure measuring device comprising a tubular sheath having an interior wall extending through the tubular sheath thereby dividing the tubular sheath into two lumens, one of the openings of the tubular sheath being aligned with one of the lumens, the other of the openings of the tubular sheath being aligned with the other of the lumens.

9. The pressure measuring device of claim 8 wherein at least one of the elongated tube or tubular sheath comprises a radiopaque marker at a distal end thereof.

10. A pressure measuring device comprising:
an elongated tube comprising an opening and an outside surface,
the elongated tube being slidably received in a tubular sheath, the tubular sheath comprising at least two spaced apart openings and an inside surface,
the elongated tube being frictionally received within the tubular sheath thereby allowing the opening of the elongated tube to be selectively aligned with both openings of the tubular sheath and so that engagement between the inside surface of the tubular sheath and the outside surface of the elongated tube substantially prevents fluid communication between the inside surface of the tubular sheath and the outside surface of the elongated tube and through the tubular sheath.

11. The pressure measuring device of claim 10 wherein the elongated tube further comprises a closed distal end.

5 12. The pressure measuring device of claim 10 wherein the tubular sheath further comprises a closed distal end.

10 13. The pressure measuring device of claim 10 wherein the tubular sheath further comprises a proximal end and a distal end which define a first length, the elongated tube further comprises a proximal end and a distal end which define a second length,

the second length being greater than the first length so that the proximal end of the elongated tube is disposed outside of the proximal end of the tubular sheath,

15 the elongated tube further comprising two markings, one of the markings of the elongated tube being aligned with the proximal end of the tubular sheath when the opening of the elongated tube is aligned with one of the openings of the tubular sheath, the other of the markings of the elongated tube being aligned with the proximal end of the tubular sheath when the opening of the elongated tube is aligned with the other of the openings of the tubular sheath.

20 14. The pressure measuring device of claim 13 wherein at least one distal end of the tubular sheath or elongated tube comprises a radiopaque marker at a distal end thereof.

25 15. The pressure measuring device of claim 13 wherein the proximal end of the elongated tube is connected to a pressure transducer.

16. A pressure measuring device comprising:

an elongated tube comprising an opening,

the elongated tube being slidably received in a tubular sheath, the tubular sheath comprising at least two spaced apart openings,

5 the elongated tube being slidable within the tubular sheath thereby allowing the opening of the elongated tube to be selectively aligned with both openings of the tubular sheath,

the tubular sheath further comprising a proximal end and a distal end which define a first length,

10 the elongated tube further comprising a proximal end and a distal end which define a second length,

the second length being greater than the first length so that the proximal end of the elongated tube is disposed outside of the proximal end of the tubular sheath,

15 the elongated tube further comprising two markings, one of the markings of the elongated tube being aligned with the proximal end of the tubular sheath when the opening of the elongated tube is aligned with one of the openings of the tubular sheath, the other of the markings of the elongated tube being aligned with the proximal end of the tubular sheath when the opening of the elongated tube is aligned with the other of the openings of the tubular sheath.

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17. The pressure measuring device of claim 16 wherein the proximal end of the elongated tube is connected to a pressure transducer.

25 18. The pressure measuring device of claim 16 wherein the tubular sheath has an inside surface and the elongated tube has an outside surface, the elongated tube being frictionally received in the tubular sheath so that engagement between the inside surface of the tubular sheath and the outside surface of the elongated tube substantially prevents fluid communication between the inside surface of the tubular sheath and the outside surface of the elongated tube and through the tubular sheath.

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19. The pressure measuring device of claim 16 wherein at least one of the elongated tube or tubular sheath comprises a radiopaque marker at a distal end thereof.

5 20. A pressure measuring device comprising:
an elongated tube comprising an opening,
the elongated tube being slidably received in a tubular sheath, the tubular sheath comprising an elongated opening having a proximal portion and a distal portion,
10 the elongated tube being slidable within the tubular sheath thereby allowing the opening of the elongated tube to be selectively aligned along the elongated opening of the tubular sheath.

15 21. The pressure measuring device of claim 20 wherein the elongated tube further comprises a closed distal end.

22. The pressure measuring device of claim 20 wherein the tubular sheath further comprises a closed distal end.

20 23. The pressure measuring device of claim 20 wherein the tubular sheath further comprises a proximal end and a distal end which define a first length,
the elongated tube further comprises a proximal end and a distal end which define a second length,
the second length being greater than the first length so that the proximal end
25 of the elongated tube is disposed outside of the proximal end of the tubular sheath,
the elongated tube further comprising two markings, one of the markings of the elongated tube being aligned with the proximal end of the tubular sheath when the opening of the elongated tube is aligned with one of the openings of the tubular sheath, the other of the markings of the elongated tube being aligned with the
30 proximal end of the tubular sheath when the opening of the elongated tube is aligned with the other of the openings of the tubular sheath.

24. The pressure measuring device of claim 23 wherein at least one of the elongated tube or tubular sheath comprises a radiopaque marker at a distal end thereof.

5 25. The pressure measuring device of claim 20 wherein the proximal end of the elongated tube is connected to a pressure transducer.

10 26. The pressure measuring device of claim 20 wherein the tubular sheath has an inside surface and the elongated tube has an outside surface, the elongated tube being frictionally received in tubular sheath so that engagement between the inside surface of the tubular sheath and the outside surface of the elongated tube substantially prevents fluid communication through the tubular sheath and between the inside surface of the tubular sheath and the outside surface of the elongated tube.

15 27. A method for measuring pressure on opposing sides of an occlusion, the method comprising:

20 providing a pressure measuring device comprising an elongated tube comprising an opening, the elongated tube being slidably received in a tubular sheath, the tubular sheath comprising at least two spaced apart openings, the elongated tube having a proximal end connected to a pressure transducer,

inserting the pressure measuring device into a vessel having an occlusion until one of the openings of the tubular sheath is disposed on one side of the occlusion and the other of the openings of the tubular sheath is disposed on an opposite side of the occlusion,

25 aligning the opening of the elongated tube with the one of the openings of the tubular sheath,

measuring the pressure at the one opening of the tubular sheath through the elongated tube,

30 aligning the opening of the elongated tube with the other of the openings of the tubular sheath,

measuring the pressure at the other opening of the tubular sheath through the elongated tube.

28. A method for measuring pressure on opposing sides of an occlusion,
5 the method comprising:

providing a pressure measuring device comprising a tubular sheath
comprising at least two spaced apart openings and an interior wall extending
through the elongated sheath thereby dividing the elongated sheath into two lumens,
one of the openings of the tubular sheath being aligned with one of the lumens, the
10 other of the openings of the tubular sheath being aligned with the other of the
lumens,

inserting the pressure measuring device into a vessel having an occlusion
until one of the openings of the tubular sheath is disposed on one side of the
occlusion and the other of the openings of the tubular sheath is disposed on an
15 opposite side of the occlusion,

measuring the pressure through the one opening of the tubular sheath,
measuring the pressure through the other opening of the tubular sheath.

29. The method of claim 28 wherein the measuring steps are carried out
20 simultaneously.

30. A method for measuring pressure on opposing sides of an occlusion, the method comprising:

providing a pressure measuring device comprising an elongated tube comprising an opening, the elongated tube being slidably received in a tubular sheath, the tubular sheath comprising an elongated opening, the elongated tube having a proximal end connected to a pressure transducer,

inserting the pressure measuring device into a vessel having an occlusion until the elongated opening of the tubular sheath extends from one side of the occlusion to an opposite side of the occlusion,

aligning the opening of the elongated tube with a portion of the elongated opening of the tubular sheath disposed on the one side of the occlusion,

measuring the pressure at the one side of the occlusion through the elongated tube,

aligning the opening of the elongated tube with a portion of the elongated opening of the tubular sheath disposed on the opposite side of the occlusion,

measuring the pressure at the opposite side of the occlusion through the elongated tube.